1120-05-228 Beth Bjorkman, Garner Cochran, Wei Gao and Lauren Keough*, lakeough@davidson.edu, and Rachel Kirsch, Mitch Phillipson, Danny Rorabaugh, Heather Smith and Jennifer Wise. The Combinatorics of RNA. Preliminary report.

Biologically, RNA is comprised of four nucleotides: adenine, guanine, uracil, and cytosine. We can model RNA by a string of the letters A, G, U, and C. RNA often folds on itself where A may bond with U and C may bond with G. Folding of RNA results in a plane tree with each side of each edge labeled. One can generalize this model of RNA by thinking about a finite set of letters and their complements. A string is folded around a plane tree in a way that each letter may only bond to its complement. We are interested in counting certain subsets of S(n,m) where S(n,m) is the collection of strings of length 2n on an alphabet of m letters and their complements. For example, we can count the number of strings that fold around a given plane tree or the number of strings that k-foldable (where a string is k-foldable if it folds around k non-isomorphic plane trees). (Received February 22, 2016)